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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,508	03/26/2004	Makoto Yoshida	2004_0438A	8593

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WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER	
MILLER, PATRICK L	
ART UNIT	**PAPER NUMBER**
2837	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/809,508	YOSHIDA ET AL.	
	Examiner	Art Unit	
	Patrick Miller	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 4, 5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamine et al. (6,034,494) in view of Kawabata (6,650,073).

   - With respect to claims 1 and 2, Kitamine et al. discloses a driver for a compressor motor (col. 1, l. 67), where the driver advances the phase current phase at startup, then reduces the phase advance once the motor is at an operating level (col. 5, ll. 23-45; phase difference between real phase and driving phase at startup, upon reaching a steady-state, the microcomputer controls the duty cycle to reduce the phase difference).
   - Kitamine et al. does not disclose driving the motor with a sine-waveform.
   - Kawabata discloses driving a brushless dc motor with a sinusoidal waveform (Table 1). The motivation to drive a dc brushless motor with a sinusoidal waveform is to suppress noise to a very low value (col. 12, ll. 57-61).
   - Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to drive the dc brushless motor of Kitamine et al. using a sine-wave, thereby providing the advantage of suppressing noise, as taught by Kawabata.
   - With respect to claim 4, Kitamine et al. discloses the brushless dc motor is a sensor-less motor which includes a stator winding and a rotor magnet (col. 3, ll. 45-46; detects the

rotor position, therefore the motor must have a rotor; it is implied that the motor has a stator winding), and which determines a position of the rotor magnet by detecting a current flowing through the stator winding (Fig. 1, #4 determines position based on the motor current).

- With respect to claim 5, Kitamine et al. discloses the switching is done using three-phase modulation (col. 2, ll. 15-16).
- With respect to claim 11, Kitamine et al. discloses reducing the phase advancement after a given length of time (col. 5, ll. 23-45; from the length of time from startup to normal operation).

2. Claims 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamine et al. and Kawabata as applied to claims 1 and 2 above.
   - With respect to claims 6, 7, 9, and 10, Kitamine et al. discloses the motor driver being used to drive an air conditioner in a vehicle (col. 3, ll. 39-40), but do not disclose the air conditioner being mounted in a car. With respect to this feature, the Examiner takes Official Notice. It would have been obvious to one having ordinary skill in the art at the time of the invention to mount the air conditioner driver of Kitamine et al. and Kawabata in a car because the driver of Kitamine et al. and Kawabata allows for a smooth transition from startup to steady-state control, which provides the advantage of preventing the motor, and subsequently the air conditioner from stopping due to loss of synchronization.
3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamine et al. and Kawabata as applied to claim 1 above, and further in view of Heeren et al (6,078,158).

- With respect to claim 3, Kitamine et al. and Kawabata do not disclose the driver drawing maximum torque based on the phase advancement.
- Heeren et al. discloses phase advancement at startup to generate maximum torque (col. 3, ll. 7-32). The motivation to generate maximum torque at startup is to decrease spin-up time (col. 4, ll. 1-5).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to phase advance the system of Kitamine et al. and Kawabata so that maximum torque is generated at startup, thereby providing the advantage of decreasing spin-up time, as taught by Heeren et al.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamine et al, Kawabata, and Heeren et al. as applied to claims 1 and 3 above.
   - With respect to claim 8, Kitamine et al. discloses the motor driver being used to drive an air conditioner (col. 3, ll. 39-40), but Kitamine et al., Kawabata, and Heeren et al. do not disclose the air conditioner being mounted in a car. With respect to this feature, the Examiner takes Official Notice. It would have been obvious to one having ordinary skill in the art at the time of the invention to mount the air conditioner driver of Kitamine et al., Kawabata, and Heeren et al. in a car because the driver of Kitamine et al., Kawabata, and Heeren et al. allows for a smooth transition from startup to steady-state control, which provides the advantage of preventing the motor, and subsequently the air conditioner from stopping due to loss of synchronization.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamine et al. and Kawabata as applied to claim 1 above, and further in view of Shinkawa et al. (5,780,983).

- Kitamine et al. and Kawabata do not disclose the motor being an interior permanent magnet motor.
- Shinkawa et al. disclose a brushless dc motor that is an interior permanent magnet motor (col. 2, ll. 39-49). The motivation to use an interior permanent magnet brushless dc motor is because the rotor magnet is inserted into a slot, which ensures the magnet remains coupled to the rotor longer.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that the brushless dc motor of Kitamine et al. and Kawabata would be an interior permanent magnet motor, thereby providing the advantage of ensuring the magnet remains coupled to the rotor longer, as taught by Shinkawa et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick Miller
Examiner
Art Unit 2837

pm
August 29, 2005

MARLON T. FLETCHER
PRIMARY EXAMINER